



Figure S1: Variations of panels **B)** - **D)** in Fig. 5 for those excitatory neurons which receive the full amount of Ornstein-Uhlenbeck noise. **B)** The distribution of the firing rates of these neurons remains unchanged during the simulation. The colors of the curves and the corresponding intervals are as follows: red (300 – 360 sec), green (600 – 660 sec), blue (900 – 960 sec), magenta (1140 – 1200 sec). **C)** Cross-correlogram of the spiking activity of these neurons, averaged over 200 pairs of neurons and over 60 s, with a bin size of 0.2 ms, for the period between 300 and 360 seconds of simulation time. It is calculated as the cross-covariance divided by the square root of the product of variances. **D)** As in **C)**, but for the last 60 seconds of the simulation. The correlation statistics in the circuit is stable during learning.